

What is Claimed:

1. A material for coating a superalloy substrate comprising a preselected silicon alkyd paint loaded with a predetermined amount of finely divided aluminum and/or aluminum alloy particles.

5 2. A material as claimed in claim 1 also containing a predetermined amount of other elemental particles ranging from 0-15% by weight.

3. A coating as claimed in claim 1 wherein said paint is Benjamin-Moore M66-79 silicone alkyd high heat aluminum paint.

10 4. A coating as claimed in claim 3 wherein said finely divided particles have a size of about - 350 mesh.

5. A coating as claimed in claim 4 wherein the mass ratio of the paint to particles is about 1:1.

15 6. A coating as claimed in claim 2 wherein said paint is Benjamin Moore M66-79 silicone alkyd high heat aluminum paint.

7. A coating as claimed in claim 6 wherein said finely divided particles have a size of about - 350 mesh.

8. A coating as claimed in claim 7 wherein the mass ratio of the paint to particles is about 1:1.

20 9. A process of coating a turbine part which is subjected to high temperature operation during its life comprising:

cleaning the part according to known techniques,

coating said part with a slurry containing finely divided aluminum
and/or aluminum alloy particles,

said slurry having a carrier of a commercially available silicone
5 alkyd paint.

10. A process as claimed in claim 9 in which said coating
contains other elemental alloying additions to improve the oxidation
resistance of said coating.

11. A process as claimed in claim 9 wherein said particles have a
10 particle size of about - 350 mesh and the carrier is Benjamin-Moore
M66-79 silicone alkyd high heat aluminum paint.

12. A process as claimed in claim 11 wherein the mass ratio of
paint to powder is about 1.1.

13. A process as claimed in claim 12 wherein the turbine part
15 coated with said slurry is allowed to air cure sufficiently and is heat
treated to partially form a diffused coating on said part in the presence of
an inert gas at about 840°C.

14. A process as claimed in claim 13 wherein the partially
treated part is heat treated in a vacuum furnace for a predetermined time
20 to diffuse-bond the coating to the turbine part at a temperature of about
1080°C.

15. A process as claimed in claim 14 wherein the part is air cooled.

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